

AMENDMENT

In the claims:

✓ Please cancel claim 1.

Please replace claims 2, 6, and 11 with the following claims.

B¹
2. A chimeric fusion protein comprising a bacteriorhodopsin protein amino acid sequence, wherein the protein comprises substantially all of the amino acid sequence of bacteriorhodopsin except the intracellular loop 3 domain, wherein the intracellular loop 3 domain of bacteriorhodopsin is replaced by at least a portion of the intracellular loop 3 domain of a G protein-coupled receptor protein.

B²
6. A polynucleotide sequence encoding the chimeric fusion protein of claim 2.

B³
11. A method of producing a bacteriorhodopsin/G protein-coupled receptor chimeric fusion protein comprising the step of culturing the archaebacterium of claim 8 under suitable conditions and for a period of time sufficient to allow expression of the chimeric fusion protein.

Please add the following new claims:

15. The chimeric protein of claim 2, wherein the G protein-coupled receptor protein is human beta 2 adrenergic receptor.

16. The chimeric protein of claim 15, wherein the intracellular loop 3 domain of human beta 2 adrenergic receptor comprises amino acid residues 12-73 of SEQ ID NO:47.

17. The chimeric protein of claim 3, wherein the G protein-coupled receptor protein is human beta 2 adrenergic receptor.

B⁴
18. The chimeric protein of claim 17, wherein the intracellular loop 3 domain of human beta 2 adrenergic receptor comprises amino acid residues 12-73 of SEQ ID NO:47.

19. The chimeric protein of claim 2, wherein the G protein-coupled receptor protein is human adenosine A1 receptor.

20. The chimeric protein of claim 19, wherein the intracellular loop 3 domain comprises amino acid residues E202-S235 of human adenosine A1 receptor.

21. The chimeric protein of claim 3, wherein the G protein-coupled receptor protein is human adenosine A1 receptor.

22. The chimeric protein of claim 21, wherein the intracellular loop 3 domain comprises

amino acid residues E202-S235 of human adenosine A1 receptor.

23. The chimeric protein of claim 2, wherein the G protein-coupled receptor protein is adrenocorticotrophic hormone receptor.

24. The chimeric protein of claim 23, wherein the intracellular loop 3 domain comprises amino acid residues A200-G217 of adrenocorticotrophic hormone receptor.

25. The chimeric protein of claim 3, wherein the G protein-coupled receptor protein is adrenocorticotrophic hormone receptor.

26. The chimeric protein of claim 25, wherein the intracellular loop 3 domain comprises amino acid residues A200-G217 of adrenocorticotrophic hormone receptor.

27. The chimeric protein of claim 4, wherein G protein-coupled receptor protein is an opsin.

28. The chimeric protein of claim 27, wherein G protein-coupled receptor protein is bovine rhodopsin.

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